

THE TWO MICRON ALL SKY SURVEY

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The Two Micron All Sky Survey, 2MASS will survey the entire sky in J, H and K with a pixel size of 2", using two dedicated telescopes, one in Arizona and the other at Cerro Tololo. 2MASS is expected to be complete for galaxies to about 13.5 at K', resulting in upwards of 10^6 galaxies in the final database. Combination with optical data from digitized Schmidt plate libraries will provide broad color information from B to K'. The 2MASS database for galaxies will consist of a catalog with magnitude, shape, size and color information, and in addition access to the raw image data. 2MASS hardware and software is under construction, with a potential start of survey operations in early 1996,

The key features of the 2MASS Survey will be its all-sky survey coverage, reaching much deeper into the zone of avoidance than any previous survey, the reduced dust extinction (in our and other galaxies) and sensitivity to the dominant stellar populations. Detailed color mapping and structural information should be possible for tens of thousands of the most nearby galaxies, and color gradients for hundreds of thousands. 2MASS will be used to study the IR Galaxy Luminosity Function in a very uniform way, thanks to its digitized all-sky uniformity, and study stellar populations and metallicity gradients in nearby galaxies. A fundamental use of 2MASS will be exploring the dynamics of the local universe by way of the Tully-Fisher method, especially in the all important low galactic latitude regions. 2MASS may also identify rare and unusual classes of infrared-bright galaxies, such as dust-enshrouded AGNs, or intrinsically red AGNs, faded disks and slow star forming disks. In the Local Group, 2MASS will provide <1 pc resolution in the Magellanic Clouds and <10 pc in M31 and M33.

The 2MASS team has built a prototype camera with which they have obtained survey type observations of hundreds of square degrees in order to test the survey strategy and design the processing code. I will summarize the results to date for galaxies, and demonstrate the huge scientific potential of this exciting survey.